REMARKS

I. Status of Claims

Claims 1-11 are pending in the application. Claim 1 is the only independent claim.

Claims 1, 6, 7, and 9-11 stand rejected under 35 USC 103(a) as allegedly being unpatentable over Bass (USP 6,272,873) ("Bass") in view of Suzuki (USP 4,949,553) ("Suzuki").

Claims 2-5 and 8 stand rejected under 35 USC 103(a) as allegedly being unpatentable over Bass in view of Suzuki and further in view of Critoph et al. (USP 5,845,507).

The Applicant respectfully requests reconsideration of the these rejections in view of the foregoing amendments and the following remarks.

II. Specification

The disclosure is objected to because of some minor informalities. The specification has been amended to obviate any perceived ambiguity, thus, the Applicant respectfully requests withdrawal of these objections.

III. Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "17" and "27" have both been used to designate "heat exchanger." In view of the foregoing amendments to the specification, the Applicant respectfully submits that that the drawing objections should be withdrawn. Reference character "17" refers to a first exchanger while reference character "27" refers to a second heat exchanger. That is, each reference character references a separate component.

IV. Pending Claims

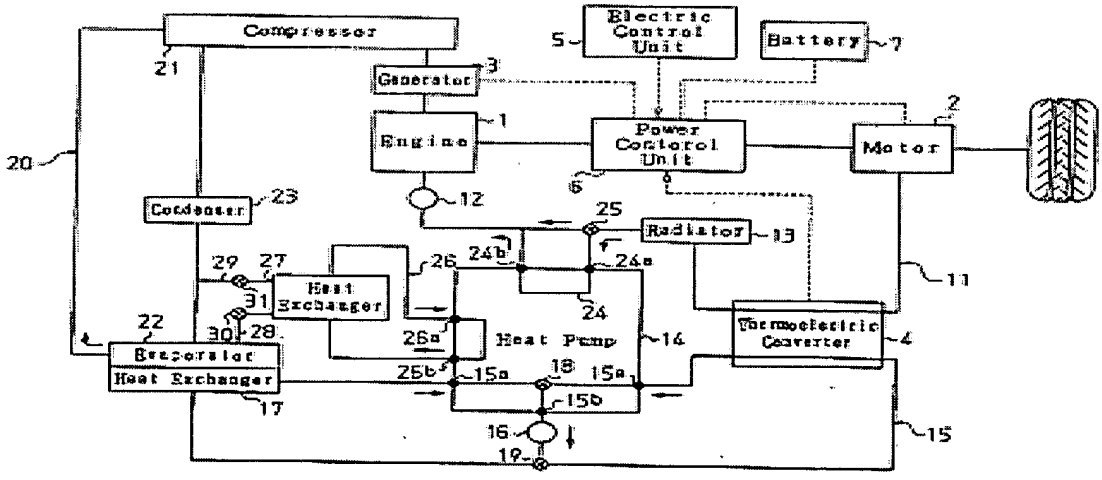
Claim 1, the only independent claim, stands rejected under 35 USC 103(a) as allegedly being unpatentable over Bass in view of Suzuki.

The Applicant respectfully submits that claim 1 is patentable over the cited references at least because it recites, *inter alia*, "...wherein the cooling device is a heat pump that generates

the low temperature thermal medium by utilizing heat from the high temperature thermal medium."

As shown in FIG. 1, provided herein below, certain embodiments of the present invention relate to a hybrid automobile utilizing an engine 1 and motor 2 as drive sources. The automobile may also have a generator 3 and a thermoelectric converter 4 for charging a battery 7. The generator 3 is driven by the engine 1 to generate electricity. The thermoelectric converter 4 uses waste heat from the vehicle to generate electricity. Charging of the battery 7 with electricity generated by the thermoelectric converter 4 allows waste heat from the automobile to be recovered as electrical energy. The hybrid automobile may further comprise an engine coolant circuit 11, in which engine coolant (high temperature refrigerant) circulates to cool the engine 1, the motor 2, and a power control unit 6. The engine coolant in the engine coolant circuit 11 is circulated through the circuit 11 by a coolant pump 12. The engine coolant passes through a radiator 13 after passing through the thermoelectric converter 4. When the engine coolant circulates in the engine coolant circuit 11, heat exchange takes place between the engine coolant and working devices that include the engine 1, the motor 2, and the power control unit 6.

Fig.1



The thermoelectric converter 4 can generate electricity utilizing a difference between the temperature of a high temperature thermal medium (high temperature medium) and the

temperature of a low temperature thermal medium (low temperature medium). The engine coolant, which passes through the thermoelectric converter 4, may be used as the high temperature medium. As the low temperature medium, pump refrigerant (low temperature refrigerant) circulating in a pump refrigerant circuit 15 can be used. The pump refrigerant in the pump refrigerant circuit 15 is circulated through the circuit 15 by a refrigerant pump 16 and passes through the thermoelectric converter 4. The pump refrigerant is cooled by a heat pump 14 and may be maintained at a low temperature in a range.

With respect to Bass, this reference describes and illustrates thermoelectric modules 36 that generate electricity by utilizing a temperature difference between cooling water passing through a cooling chamber 37 and heat generated during combustion process in a combustion chamber 35 (See Figs. 2A and 2B of Bass). In other words, Bass describes a thermoelectric converter 36 that generates electricity by utilizing a temperature difference between the low temperature thermal medium (cooling water) and the high temperature thermal medium (heat medium in the combustion chamber 35).

In addition, Bass describes and illustrates a cooling device (fan 10 and heat exchanger 12) that cools the cooling water (See Fig. 1 of Bass). When the cooling water passes through the cooling chamber 37, the cooling water is warmed by heat generated in the combustion chamber 35. The warm cooling water exiting from the cooling chamber 37 is cooled by the cooling device 10, 12 and is returned to the cooling chamber 37.

However, as the Office Action recognizes (See page 4, paragraph 7, of the Office Action), Bass fails to describe and/or illustrate that the cooling device is a heat pump, which generates the low temperature thermal medium by utilizing heat from the high temperature thermal medium.

In an attempt to address at least this deficiency of Bass, the Office Action cites Suzuki (See page 4, paragraph 7, of the Office Action). Suzuki discloses a heat pump 24 that includes a first heat exchanger 28 and an interior heat exchanger 29. The first heat exchanger 29 performs a heat exchange between engine cooling water circulating a cooling water circuit and refrigerant circulating a refrigerant circuit. The refrigerant flows through the refrigerant circuit to circulate between the first heat exchanger 28 and the interior heat exchanger 29.

During a heating mode, the cooling water is heated by the exhaust gas and flows into the first heat exchanger 28 so that the refrigerant is heated by the cooling water (See column 5, line 63, to column 6, line 24, of Suzuki; See also Fig. 4a). During a cooling mode, the cooling water is cooled in a third heat exchanger 30 and flows into the first heat exchanger 28 so that the refrigerant is cooled by the cooling water (See column 6, line 65, to column 7, line 8; See also Fig. 4c).

As discussed herein above, Suzuki merely discloses a heat pump that heats refrigerant in the refrigerant circuit by utilizing the high temperature cooling water and cools refrigerant in the refrigerant circuit by utilizing the low temperature cooling water. However, in contrast to certain embodiments of the present invention, Suzuki does not describe and/or illustrate that the cooling device is a heat pump that generates the low temperature thermal medium by utilizing heat from the high temperature thermal medium. More specifically, Suzuki does not describe and/or illustrate that the heat pump generates the low temperature thermal medium, which is used for generating electricity, by utilizing heat from the high temperature thermal medium, which is also used for generating electricity, as required by the Applicant's claims.

The Applicant respectfully submits that none of the other cited references cure the deficiencies of Bass and/or identify a reason to modify Bass in the manner as claimed by the Applicant. As discussed in *KSR Int'l Co. v. Teleflex, et al.*, No. 04-1350, (U.S. Apr. 30, 2007), the Applicant respectfully submits that it remains necessary to identify the reason why a person of ordinary skill in the art would have been prompted to combine alleged prior art elements in the manner as claimed by the Applicant. Obviousness cannot be sustained on mere conclusory statements.

Therefore, the Applicant respectfully submits that, for at least these reasons, claims 1 and its dependent claims are patentable over the cited references.

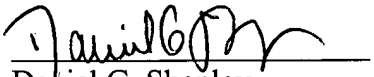
V. Conclusion

In light of the above discussion, Applicants respectfully submit that the present application is in all aspects in allowable condition, and earnestly solicits favorable reconsideration and early issuance of a Notice of Allowance.

The Examiner is invited to contact the undersigned at (202) 220-4420 to discuss any matter concerning this application. The Office is authorized to charge any fees related to this communication to Deposit Account No. 11-0600.

Respectfully submitted,

Date: May 12, 2008

By: 
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